



What is AICUZ?

The Air Installation Compatible Use Zone (AICUZ) Program concerns people and their comfort, safety, and protection. This pamphlet briefly summarizes the 2008 *Air Installation Compatible Use Zone Study for Ellsworth Air Force Base*—an analysis of the effects of aircraft noise, accident potential, land use compatibility, and adjacent development for present and future neighbors of Ellsworth Air Force Base (AFB).

Is there a problem?

Military airfields attract development to adjacent areas. In the absence of controls to ensure compatible land use, inappropriate uses may be made of property near or adjacent to an installation that may eventually cause conflicts between flight operations and surrounding landowners. Because land close to Ellsworth AFB is subject to aircraft noise and the potential for aircraft accidents, certain types of development are not suitable in certain areas.

What has been done?

Ellsworth AFB strives to be a good neighbor by voluntarily restricting flying activities that could adversely affect the surrounding area. For example, flying operations are normally conducted between the hours of 7:00 a.m. and 10:00 p.m. Practice approach and departure operations are normally conducted during the day when expected noise disruptions are less than they would be during the night. Flight pattern altitudes and the runway approach angles have been adjusted over the years in an effort to reduce noise impacts while maintaining safe operations. In addition, the City of Box Elder created a North Ellsworth Corridor Overlay District to limit additional development near the runway approaches to the airfield. Continued cooperation between Ellsworth AFB, local governments, and the local populace will further reduce the potential for land use conflicts. The 2008 AICUZ Study provides information to help ensure that future land use will be compatible and beneficial.

What are the benefits?

In addition to protecting public safety and health, the primary benefits of incorporating AICUZ guidelines include protecting the taxpayer's investment in national defense provided by Ellsworth AFB and protecting economic benefits to the neighboring communities generated by installation activities and employment. The local economy benefits from Ellsworth AFB expenditures for salaries, contracts, construction, retirement pay, health and education, and off-installation work. Ellsworth AFB employed 9,754 military and civilian personnel in fiscal year 2006 with an annual payroll of approximately \$184 million. Through service and construction contracts, including primary and secondary employment and payrolls, it is estimated that the total economic impact of Ellsworth AFB on the City of Box Elder, Rapid City, and Rapid Valley is approximately \$313 million annually.

Why AICUZ now?

The 2008 AICUZ Study addresses the changes that have occurred since the last AICUZ Study in 1994. Differences

between the 1994 AICUZ Study and the 2008 AICUZ Study are attributable to the following:

- Changes in assigned and transient aircraft operations and flight profiles since the 1994 AICUZ Study
- Modifications to the Department of Defense- (DOD) approved NOISEMAP software program made subsequent to the release of the 1994 AICUZ Study.

The area surrounding Ellsworth AFB continues to experience growth. Information provided in the 2008 AICUZ Study is intended to offer assistance to those planning the future of the neighboring communities. By using the information provided in the AICUZ Study, neighboring communities are better equipped to make land use decisions and adopt land use controls that are compatible with the missions at Ellsworth AFB.

What does AICUZ mean to me?

The purpose of the AICUZ Program is to protect public safety and health, as well as the national defense mission of the U.S. Air Force (USAF). The AICUZ Program consists of the identification and analysis of many factors including the day-night average sound level (DNL) metric, aircraft flight paths and altitudes, and accident potential zones (APZs). Noise Zones and APZs reflecting 2008 current conditions are displayed in **Figure 1**.

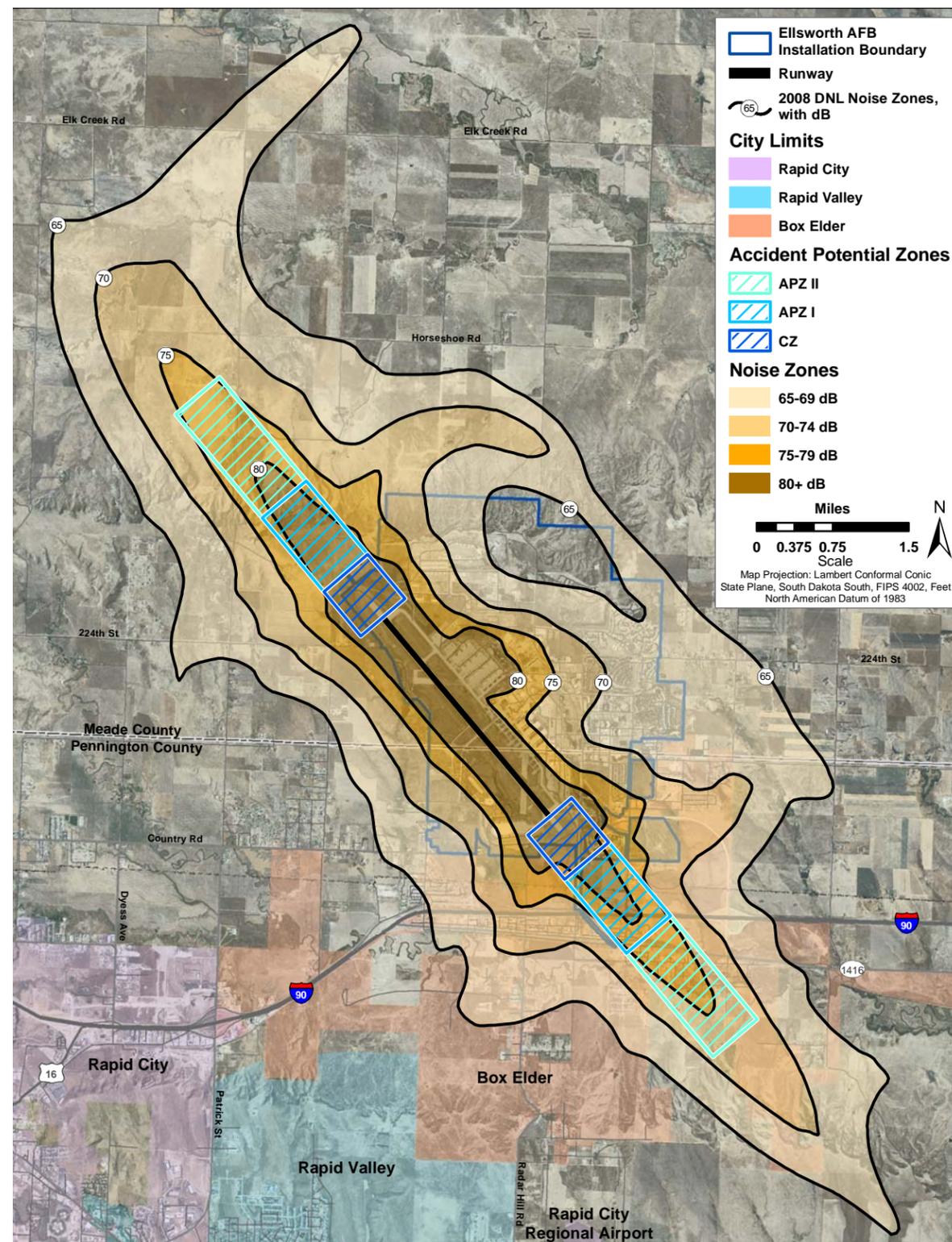
The AICUZ Program uses a DNL metric developed and approved in the early 1970s by the U.S. Environmental Protection Agency to describe the noise environment. The AICUZ Study contains noise zones plotted in increments of 5 decibels (dB), ranging from a DNL of 65 dB up to 80+ dB.

The APZs are based upon statistical analysis of past DOD aircraft accidents. APZs consists of a clear zone (CZ), APZ I, and APZ II (see **Figure 1**). The CZ, the area closest to the runway end, is potentially the most hazardous. The overall risk is high enough that DOD generally acquires the land through purchase or easement to prevent development. APZ I is an area beyond the CZ that possesses a significant potential for accidents. APZ II is an area beyond APZ I having a lower, but still significant, potential for accidents. While the aircraft accident potential in APZs I and II does not warrant land acquisition by the USAF, land use planning and controls are strongly encouraged in these areas for the protection of the public. An additional constraint involves areas that the Federal Aviation Administration and DOD have identified for height limitations for structures. USAF obstruction criteria are based upon those contained in Federal Aviation Regulation Part 77, Subpart C, amended April 1971.

Table 1 provides a quick reference of compatible land uses within the various noise zones and APZs around Ellsworth AFB. More detailed information can be found in **Section 3** of the 2008 AICUZ Study.

How can I help?

Historically, the citizens in the communities surrounding Ellsworth AFB have worked together with the USAF and local municipalities in cooperative efforts to plan land use to better serve the community and the installation. If Ellsworth AFB's future is to be as bright as its past,



Source of Noise Zones: e*MI, Inc 2008.

Figure 1. Ellsworth AFB Accident Potential Zones and 2008 DNL Noise Zones



continued involvement by the citizens from the surrounding communities is needed to ensure solutions best address mutual concerns. In brief, the following recommendations are contained in the 2008 AICUZ Study:

- (a) Community planners from the City of Box Elder, Rapid City, and Pennington and Meade counties should consider the recommendations of the 2008 AICUZ Study when developing their land use plans and zoning regulations.
- (b) Fair disclosure ordinances should be enacted to specify disclosure to the public those AICUZ items directly related to aircraft operations at Ellsworth AFB.
- (c) The regulations in the North Ellsworth Corridor Overlay District that can potentially minimize risks and noise exposure levels from aircraft operations at Ellsworth AFB should be expanded to include all of the property in Box Elder that is within the AICUZ environs.
- (d) Height control of structures near flight paths should be regulated by incorporation of such controls into zoning ordinances.

- (e) Subdivision regulations should provide for rejection of new subdivisions not compatible with AICUZ land use guidelines and provide controls for continued development in existing subdivisions.
- (f) Capital improvement programs should be carefully reviewed to discourage incompatible land use patterns, with particular emphasis on utility extension planning.
- (g) Local governments should formalize procedures regarding planning and zoning activities that have the potential to be incompatible with aircraft operations at Ellsworth AFB.
- (h) Local municipalities should exercise caution when approving transportation plans to ensure that such plans would not impact Ellsworth AFB's ability to fulfill its mission requirements.

Who prepared the AICUZ Study?

The AICUZ Study was developed by many people at Ellsworth AFB under the guidance of Headquarters USAF and the Air Combat Command within the USAF. The complete AICUZ Study is available at the Ellsworth AFB Public Affairs Office.

Table 1. Land Use Compatibility Guidelines

General Land Use	Accident Potential Zones			DNL Noise Zones			
	CZ	APZ I	APZ II	65-69 dB	70-74 dB	75-79 dB	80+ dB
Residential	No	No	Yes ¹	No ¹⁰	No ¹⁰	No	No
Industrial	No	No ²	Yes ²	Yes	Yes ¹¹	Yes ¹¹	Yes ¹¹
Commercial	No	Yes ⁶	Yes ⁶	Yes	Yes ¹¹	Yes ¹¹	No
Public/Semi-Public Services	No	No	Yes ⁵	Yes ¹¹	Yes ¹¹	Yes ¹¹	No
Recreational	No	Yes ^{6,7,8}	Yes	Yes	Yes ¹¹	Yes ¹¹	No
Open Space/Low Density	Yes ⁹	Yes ⁹	Yes	Yes	Yes	Yes	Yes
Transportation (no structures)	Yes ³	Yes ⁴	Yes	Yes	Yes	Yes	Yes

Sources: Department of Defense Instruction 4165.57. 1977. *Air Installations Compatible Use Zones*; Federal Interagency Committee on Urban Noise. 1980. *Guidelines for Considering Noise in Land Use Planning Control*; U.S. Urban Renewal Administration. 1965. *Standard Land Use Coding Manual: A Standard System for Identifying and Coding Land Use Activities*.

For additional details on the land use compatibility guidelines presented in this table, please refer to the 2008 AICUZ Study for Ellsworth AFB, which includes a more comprehensive summary of land use compatibility with respect to aircraft noise and accident potential.

- Notes:
- 1. Suggested maximum density of 1 to 2 dwelling units per acre, possibly increased under a Planned Unit Development where maximum lot coverage is less than 20 percent.
 - 2. Within each land use category, uses exist where further deliberating by local authorities could be needed due to the variation of densities in people and structures. Shopping malls and shopping centers are considered incompatible use in any accident potential zone (CZs, APZ I, or APZ II).
 - 3. The placement of structures, buildings, or aboveground utility lines in the CZs is subject to severe restrictions. In a majority of the CZs, these items are prohibited. See Air Force Instruction 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*, and Air Force Joint Manual 32-8008, *Airfield and Heliport Planning Criteria*, for specific guidance.
 - 4. No passenger terminals and no major aboveground transmission lines in APZ I.
 - 5. Low-intensity office uses only. Meeting places, auditoriums, and the like are not recommended.
 - 6. Facilities must be low-intensity.
 - 7. Clubhouse not recommended.
 - 8. Areas for gatherings of people are not recommended.
 - 9. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
 - 10. Unless sound attenuation materials are installed.
 - 11. Measures to achieve noise level reduction need to be incorporated into the construction of the portions of these buildings where there are public facilities, office areas, or noise-sensitive areas.



CITIZEN'S BROCHURE for the Ellsworth Air Force Base Air Installation Compatible Use Zone (AICUZ) Study

Headquarters Air Combat Command



December 2008